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NORM ACCESSIBILITY: AN EXPLORATORY STUDY OF BACKCOUNTRY AND FRONTCOUNTRY RECREATIONAL NORMS

Final Report

Research Joint Venture Agreement

between

Human Dimensions in Natural Resources Unit
Colorado State University
Fort Collins, Colorado

and

Aldo Leopold Wilderness Research Institute
U.S.D.A. Forest Service
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Norm Accessibility: An Exploratory Study of Backcountry and Frontcountry Recreational Norms

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Abstract

This exploratory study examined the types of accessible norms recalled by subjects in response to scenes of frontcountry and backcountry settings. Since salient norms are more likely to influence behavior, the concept of norm accessibility has utility for recreation and natural resource management. College students completed a questionnaire after viewing sets of photographic slides of either frontcountry or backcountry recreation settings to elicit salient norms and to measure their previous experience, knowledge, and frequency of use levels with the specific setting. Results suggest that while there seem to be few differences in the types of norms recalled or mean number of norms held by respondents in backcountry and frontcountry settings, there was slightly more group agreement in the norms held for the backcountry setting. The number of norms recalled by respondents was slightly influenced by previous experience, frequency of contact with the setting, and level of knowledge with the recreational setting. Implications from these findings for developing strategies for influencing recreation behavior are discussed.

Keywords norms, norm accessibility, salience, recreational behavior, backcountry norms, frontcountry norms.

Introduction

The norm construct has received considerable attention from recreation researchers. Although applications of the concept sometimes differ, researchers generally agree that norms are evaluative rules that involve some level of shared group agreement or consensus, and focus on what is appropriate behavior for a given situation (Manning, 1985; Noe, 1992; Roggenbuck, Williams, Bange, & Dean, 1991; and Vaske, Donnelly and Shelby, 1993). Sanctions or other forms of social control often serve to communicate and enforce norms.

Norms provide a basis for describing, predicting, and influencing recreation behavior. Their importance to natural resource management issues and problems has been demonstrated in three primary ways. The most common application has been in studies of crowding where encounters, proximity, and conflict issues have been examined within a normative context (Patterson & Hammitt, 1990; Roggenbuck et al., 1991; Vaske et al., 1993). Conclusions from these studies have served as the foundation for prescribing standards for acceptable levels of social and ecological impacts (Heberlein, 1977; Shelby & Vaske, 1991; Shelby, Vaske, & Harris, 1988; Shelby, Vaske & Heberlein, 1989; Vaske, Donnelly, & Heberlein, 1980; Vaske, Shelby, Graefe & Heberlein, 1986). Models such as Limits of Acceptable Change [LAC], Carrying Capacity Assessment Process [C-CAP], and Visitor Impact Management [VIM], used to evaluate resource conditions and impacts, have incorporated information from these normative studies (Shelby & Vaske, 1991).

Norms have also been used to explain and predict recreation behavior, most notably in application of Fishbein and Ajzen's Theory of Reasoned Action (Fishbein & Ajzen, 1975). This theory suggests that subjective norms, along with attitudes, influence behavioral intentions, which precede behavior. Subjective norms are defined as people's beliefs about whether significant others feel they should or should not perform a particular action or behavior. The theory has been used in prediction of participation in camping (Young & Kent, 1985), evaluating response to interpretive

messages (Cable, Knudson, Udd & Stewart, 1987), and measuring attitudes toward resource management practices (Manfredo, Fishbein, Haas & Watson, 1990).

Finally, information on norms has implications for influencing recreation user behavior. Management strategies employing normative data have been developed to cue appropriate personal conduct in recreational settings. Normative approaches to influence recreation behavior have concentrated on understanding and controlling depreciative behavior (Christensen & Clark, 1983; Cialdini, Reno, & Kallgren, 1990; Gramann & Vander Stoep, 1987). Christensen and Clark (1983), and Cialdini et al. (1990) illustrate the effective use of normative cueing in decreasing littering behavior.

Recently, the use of norm theory in recreation research has been a subject of discussion (Roggenbuck et al. 1991; Noe, 1992; Shelby & Vaske, 1991; Vaske et al., 1993; Williams, Roggenbuck & Bange, 1991). Questions about how norms are currently conceptualized and applied in recreational settings are at the core of this dialogue. These questions have been most evident in debates over the methodology for measuring norms and may be related to how norms used in past studies have been generated. Most recreational norm studies focus on specific researcher or manager generated normative concerns regarded as vital for management issues (e.g., encounters). In a study examining how salience influenced reports about recreation decision attributes, however, Barro, Manfredo and Wells (1994), found that researcher and manager generated attributes differed from those generated by visitors. Similarly, a norm considered important to a researcher or manager may not be salient or existent to a visitor at a recreational setting. As norms are presumed to influence recreation behavior, knowledge about the types of salient norms held by visitors may prove valuable to recreation managers. Types of recreation norms held by individuals about different recreational settings is the central focus of the study presented here.

Three questions of relevance to understanding norms in recreation settings are addressed. First, which norms, if any, are held by individuals in different recreational settings? Despite the central role of norm theory in recreation research, few studies have sought to identify the range of salient norms held by recreationists in various settings. Second, how much agreement is there about norms in various recreation settings? Agreement about norms elicited by recreation settings and the certainty with which they are held have received little empirical attention. Third, how does experience level affect the number of salient norms held by recreationists? Individuals with more experience in specific recreational setting are more aware of the expected behavior than those with little experience and knowledge about the setting (Hammitt & McDonald, 1983; Schreyer, Lime & Williams, 1984; Williams, Schreyer & Knopf, 1990). Subjects with higher levels of experience in the recreational setting are predicted hold more norms.

Conceptual Framework

Our conceptual framework focuses on the process by which normative beliefs are accessed from memory. Accessibility is central to whether or not norms will influence recreation behavior. Three key factors affecting how norms are accessed from memory are examined. First, situational cues prompt the accessing of normative beliefs from an individual's memory. Second, accessibility occurs with the association of the normative belief with environmental stimuli. Third, the extent to which normative beliefs are accessed from memory is influenced by the subject's previous associations with or trials in retrieving the norms. This study is a first-step in examining the proposed conceptualization of how norms are accessed from memory.

Situational cue. The introduction of a "cue" based on environmental stimuli, serves to focus attention on specific recreational beliefs and influence the recall or access of norms from memory.

The amount of cueing required to retrieve the normative beliefs is determined by the accessibility of those beliefs. The most easily recalled norms are instantly available from memory with limited cueing (Cialdini et al., 1990). When the cued situation solicits a recall, salient normative beliefs will be accessed first. When the ability to retrieve a norm is more difficult, a high degree of cueing may be needed to recall norms.

Norm Accessibility. Building from Fazio's (Fazio, Chen, McDonel, & Sherman, 1982; Fazio, Powell & Herr, 1983; Vincent & Fazio, 1992) work on attitudes, norm accessibility is defined as the ease with which a given recreational situation or setting elicits an automatic cognition about an appropriate behavior (i.e., a norm). Accessing norms from memory is a cognitive process where a strong association between the situation and the automatic cognitive evaluation facilitates a norm to be instantly recalled. Once the norm is accessed, cognitive elaboration may occur. Cognitive elaboration is defined as the process of recalling, expounding, and linking to other beliefs within the individual's memory system. With increased accessibility, there is an increase in the likelihood to act on the norm since easily retrieved norms are more likely to influence behavior (Cialdini, et al., 1990). In some cases, normative beliefs may not exist for a situation and therefore, not be available from the subject's memory. If a norm is not accessed from memory, it will have no affect on influencing behavior.

Experience level. Applying previous attitude accessibility research (Vincent & Fazio, 1992) to norms suggests two factors influence accessibility. Both are related to the level of experience a person has with a situation or setting. First, "repeated expression" has been proposed to induce greater accessibility of the norm. Frequent pairing of normative beliefs with a setting may influence the level of accessibility. The more a normative belief is associated with a situation, the

greater its strength of association with that setting and the greater the accessibility of recall from memory. More frequent expression levels result in more easily accessing norms. Less frequent expression levels result in difficulty of accessing norms from memory.

Second, "direct experience" (Vincent & Fazio, 1992) with the situation may influence norm accessibility. Schreyer et al. (1984) showed that more experienced river floaters were more likely to report user conflicts and support management than less experienced floaters. This may indicate a higher degree of awareness of the norms associated with the setting. Manfredo, Yuan, and McGuire, (1992) used direct experience and repeated expression as indicators of accessibility in a study of attitude-behavior relationships dealing with support of controlled-burn fire policies for parks. They found a greater consistency between attitudes and behavioral intentions for individuals with more experience and repeated expression. Memories of behaviors or observations of others' behaviors may lead to greater accessibility of norms than indirect experiences with the setting or situation. Normative beliefs formed on the basis of indirect experiences may not be strongly held, and may be more difficult to access from memory (e.g. norms generated from reading about camping in a wilderness setting versus norms formed from actually camping there.)

In summary, repeated exposure and direct contact with a recreation setting may invoke familiarity which may increase norm accessibility. Recreation norms that are repeatedly expressed or based on direct experience may be more salient because they are strongly held in memory. Research suggests that the higher the belief strength the more influence it will have on attitudes and behaviors (Eagly & Chaiken, 1993). Applied to the norm construct, more accessible norms may be more strongly held by respondents. Accessibility may be a significant concept for recreation norm research since accessible norms may be more likely to influence behavior.

Recreational Settings and Norms. This study explored the types of accessible norms held by subjectss in backcountry (wilderness or undeveloped) and frontcountry (developed) recreational settings. Norms for both backcountry and frontcountry settings were examined. Previous research suggests settings play a confounding role in norms held by recreationists (Vaske, Donnelly, Doctor, & Petruzzi, in press). Most studies focus primarily on backcountry settings (Graefe, Vaske, & Kuss, 1984), with limited work in frontcountry crowding issues (Westover & Collins, 1987). Westover and Collins showed that backcountry and frontcountry settings elicit different images and expectations about visitor density.

Objectives

The major objective of this study was to ascertain which recreation norms are accessible from memory in response to recreation setting cues. Five questions that arose in our exploration of recreation norm accessibility define the objectives of this study.

1. What type of recreation norms are held by individuals in backcountry and frontcountry recreational settings?
2. How much agreement is there about norms held by recreationists in backcountry and frontcountry settings?
3. Do existing recreation norms differ for backcountry and frontcountry settings?
4. Do the number of recreation norms held by respondents vary by experience levels?
5. With what certainty are recreation norms held by individuals in backcountry and frontcountry settings?

Methodology

Subjects

Subjects for this study were students recruited from four different undergraduate recreation courses at a major Western university. Subjects were randomly assigned to one of two treatment groups. The treatment consisted of viewing sets of photographic slides of either backcountry or frontcountry recreation settings.

Normative Cue

Use of photographs and slides to depict natural settings has been shown to be useful in various studies including: prediction of recreation participation (Brown, Daniel, Richards, & King, 1988); orientation to ecotones in recreation environments (Rudell & Hammitt, 1987); visitor evaluations of ecological impacts (Shelby et al., 1988); campground ecological impacts (Shelby & Shindler, 1992); and determining forested residential scenic values (Vining, Daniel, & Schroeder, 1984). Photo-based studies have shown group to group reliability (Brown, et al., 1988) and results have not differed significantly from actual on-site surveys (Shelby & Harris, 1985). Photographs has been shown to activate memory and access attitudes (Fazio et al., 1983:734).

In this study slides were utilized as cues to elicit norms for two types of environments, backcountry and frontcountry settings. Ten scenes for each setting were selected to be judged by a panel of experts. The panel of judges (3 male and 3 female) was comprised of faculty and graduate students with knowledge and experience in recreational settings. The panel members were instructed to select the five slides that best represented backcountry or frontcountry settings. The five slides from each setting receiving the highest ranking by the judges were used as cues for the study.

Backcountry slides included scenes from western wilderness areas which excluded any signs of human environmental impact (i.e. trails, structures, etc.). Frontcountry slides included scenes of developed recreational sites (i.e. structures, facilities, trails, etc.) *The photographs excluded depicting individual recreationists as the presence of specific individuals in the slides might provide normative cues about behavior.* For example, activities depicted in the photograph may cue a respondent to invoke specific norms (e.g. walking on designated trails), but may not cause the same affect in another subject.

Procedure

This laboratory study was conducted in a large lecture hall equipped with a 40' x 60' screen for projecting the slides. Independent sessions were conducted for the backcountry and the frontcountry experiments on two separate days. In both test sessions the same procedures were followed, only the slides and the subjects varied. After arriving for their session, the subjects were asked to complete a short demographic survey. To enable the respondents to understand the type of information sought, an unrelated example of a norm was provided: "If I showed slides depicting a theatre, an answer might be that others would expect you not to arrive late to the start of the performance". The subjects were then asked to "view the five slides and to list their beliefs about what specific behaviors others expect of them in the type of setting depicted in the slides". They were asked to list those items that immediately came to their minds. The five slides were shown continually for a period of three minutes, then students were asked to stop writing and the projection was turned-off. Respondents were then asked to complete a seven point Likert-type questionnaire to assess their experience (*no experience at all in this setting* [1] to *more experienced than most people in this setting* [7]*)*; knowledge *(not at all knowledgeable* [1] to *extremely knowledgeable* [7]*);* and frequency of use *(never use* [1] to *often use* [7]*)* for the recreation setting

depicted in the slides. Respondents evaluated the certainty of each normative belief they listed using a seven point Likert-type scale: "how certain are you that this is how a person ought to behave in this type of setting" *(not at all certain* [1] to *extremely certain* [7]*).*

Data Analysis

Individual responses elicited for either backcountry or frontcountry settings were classified into typology of normative beliefs. For example, normative beliefs "be kind to animals" and "to not inflict harm on any wildlife" were classified into the norm "should respect wildlife". Norms were classified into categories by two researchers independently and who then cross checked entries for any idiosyncrasies. Less than one percent of the norms listed were inconsistent classifications. Frequencies of the type of norms listed were tabulated and the number of norms per subject was calculated. Normative beliefs listed by at least ten percent of the respondents were included in the list of generated norms.

To test differences due to past experience, perceived knowledge, and frequency of use, the respondents were divided into high and low groups at the median for each of the variables. Three two-way analyses of variance were used to test study objectives; specifically, the effect of experience with setting, frequency of use in setting, and knowledge of setting on number of norms. Additionally, an examination of the certainty with which the elicited norms were held by respondents is reported.

Because of the exploratory nature and the low sample sizes, we have adopted the statistical significance acceptance at the $p = .1$ level. Acceptance of statistical significance at the $p = .1$ level for exploratory studies is supported in recreation research literature (Gregoire & Driver, 1987).

Results

Description of Subjects

A total of eighty-five subjects participated in the study. Approximately half were assigned to the backcountry treatment (n = 44) and half to the frontcountry treatment (n = 41). The age of the subjects ranged from 18 to 47 with the mean age being 23. Subjects were somewhat evenly divided between male (54%) and female (46%). The subject pool included students from the following majors: recreation and tourism (29 students), natural resource and biology (25 students), and other majors (31 students). Because the results showed no significant differences in number of norms ($F = 1.916$, $p = .15$) of student by major, the data was collapsed across student major.

Salient Norms

After grouping, 11 of norms were generated from those who viewed backcountry slides (Table 1) and 12 norms were elicited from the frontcountry slides (Table 2). The most widely held norm for backcountry respondents was "minimally impacting the resource" (73%) followed by "not littering" (70%). Nearly 4 out of 10 (39%) held norms about "being quiet in the setting", "not destroying vegetation", and "being careful with fires." The remainder of the norms were held by fewer than one-third of the respondents.

(Table 1 about here.)

The most widely held norm for those viewing frontcountry settings was "not littering" (80%) (Table 2). "Being quiet in the setting" was listed by only 34% of the respondents. The remainder of the elicited frontcountry salient norms were listed by between 10% and 32% of the respondents.

(Table 2 about here.)

Number of Norms by Setting and Experience Levels

Analysis of variance was used to test for the effects of overall experience level (measures as, frequency of visitation, past knowledge, and experience levels) and setting on number of norms listed by a person (Tables 3, 4, 5). In the first test, only frequency of past experience was significantly associated number of norms reported, while setting and the interaction of setting and frequency was not significant (Table 3). Respondents with higher frequency of past experience with the setting reported a greater number of norms (m = 4.27) than those who used the setting less frequently (m = 3.23).

(Tables 3, 4, and 5 about here.)

In the second test a significant interaction between setting and perceived knowledge was found (Table 4). Although there is only a small difference in the number of frontcountry norms held by those with high (m = 3.57) and low (m = 4.27) knowledge, there is a large difference in the number of backcountry norms between those with high and low knowledge level (Figure 1). Those with high knowledge of backcountry recalled 5.04 norms on average, while those with low knowledge of backcountry reported an average of 2.83 norms.

In the third test, findings with perceived experience were similar to perceived knowledge, however, were significant only at p = .119 (Table 5 and Figure 2). While people with high and low experience in frontcountry held virtually the same number of norms (m = 3.62 and m = 3.90 respectively), people with high experience in backcountry (m = 4.63) held on the average more norms than people with low experience in backcountry (m = 3.35).

(Figures 1 and 2 about here.)

Certainty of norms. Respondents evaluated each of the norms they listed with respect to the certainty with which they were held. The 10 most frequently mentioned norms for each setting and their mean certainty scores are shown in Table 6. All of the norms were held with a high degree of certainty regardless of their rank on the listing. For example, the average certainty for the most commonly listed frontcountry norm, *should not litter* (m = 6.85, s.d. = .44) was similar in certainty score to the least commonly listed frontcountry norm, *should respect wildlife* (m = 7.00, s.d. = 0) suggesting a correspondence between the strength and accessibility of the elicited norms.

(Table 6 about here.)

Discussion

This exploratory study identified norms that are easily recalled by individuals in backcountry and frontcountry settings. The goal was to determine which types of norms are held by recreationists. We further explored the influence of experience levels on the number of norms accessed and the certainty with which norms are held.

The cues utilized were limited to generic photographs of recreation settings that contained no people. Norms identified here are not comprehensive with respect to backcountry or frontcountry settings. Specific situations within each setting may trigger other normative beliefs not identified in this study. For example, in order to access norms on highly crowded situations, cueing would need to portray high densities of recreation users.

The results revealed few differences between backcountry and frontcountry setting in the

types of norms or the mean number of norms held by recreationists overall. Recreationists responding to backcountry setting cues showed slightly more group agreement in the norms held than recreationists responding to frontcountry cues. Backcountry recreationists may be in more general agreement about what behaviors are appropriate or acceptable than frontcountry recreationists. An observation consistent with past research showing backcountry users have more salient norms about user density than frontcountry users (Shelby et al., 1989).

Higher frequency of contact with the setting was related to the ability to recall more norms. Setting and knowledge level together affected the number of norms recalled. In response to backcountry scenes, respondents with a higher level of knowledge recalled more norms than those with a low level of knowledge. For the frontcountry setting, respondents with high and low levels of knowledge differed little in the number of norms they could recall. A similar pattern emerged between previous experience level and the setting in determining the number of norms recalled.

The different effects of experience by settings may be partially attributed to the range of specialization among visitors in developed versus backcountry settings. Backcountry settings impose more demands and challenges in skill, equipment, etc., and thus are likely to attract a broader range of specialized users compared to frontcountry settings. As specialization increases, it would be expected that a person holds more beliefs about an activity, particularly normative beliefs about appropriate backcountry behavior. Some support for this is found in Schreyer and Beaulieu (1986) who determined experience and commitment with wildland recreation settings were significantly related to the number of attributes used in making site choice decisions. The finding that experience level in backcountry increases the number of norms held may be related to the specialization attainable by individuals in these settings.

Regardless of the type of setting or the level of previous experience, all salient norms listed by the respondents were held with high certainty. The accessibility of recreation normative beliefs from memory, and the certainty with which they are held, may be key to understanding how norms function to affect behavior in recreation settings. In research conducted on attitudes, certainty has been applied as a measure of attitude strength. Greater attitude strength has been associated with greater attitude-behavior consistency (Eagly & Chaiken, 1993). Applied to the norm construct, the certainty of normative beliefs can be considered a measure of norm strength. Results here are consistent with the suggestion that salient norms are held with a high degree of certainty and thus are strongly held. These salient and strongly held norms may be more likely to affect behavior. The more salient norms are likely to be more personally important and held with greater certainty. Variability in the behavioral effects of norms due in part to their salience has been demonstrated in a study involving littering behavior. Cialdini, et al. (1990) showed that if a specific norm is not salient, it is not very effective in causing a behavioral response in individuals.

Information about norms held by recreationists may be important when attempting to influence recreation behavior. First, it may be possible to simply cue strongly held norms to make them more salient to facilitate the person acting consistently with a held norm. The promise of this approach has been illustrated by Cialdini, et al. (1990) study of littering. When people were cued to focus on the normative belief of not littering, they were more likely to behave consistently with the held norm. Cueing recreationists to focus on a management issue may reinforce the proper behavior consistent with the normative belief. For example, agencies might provide on-site cueing information not to cut across switchbacks in order to minimally impact the resource. The message should focus on normative expectations (e.g, considerate backcountry users do not impact the resource by shortcutting.) Not cutting across switchbacks is one of the components listed in the "leave no trace" program. This program was identified by many

respondents who listed minimally impacting the resource as a strongly held normative belief. Cueing this component may reinforce the specific norm of not cutting switchbacks by recreationists.

A second strategy might be to broaden the acceptance of existing normative beliefs. For example, while respondents here listed respect for wildlife as a salient norm, many people may not be cognizant that feeding wildlife is considered by experienced recreationists and managers as inappropriate behavior . Interpretive messages might indicate that most experienced backcountry users and managers agree that feeding wildlife is disrespectful of wildlife. The strength of this association could be intensified by increasing the repetition of this message and the number of sources from which the message is received. The accessibility of recreation norms shows promise in the development of persuasive message campaigns to broaden acceptance of existing recreation norms. The most salient normative beliefs were concepts that have well organized and defined public information campaigns such as anti-littering, "leave no trace", and forest fire protection. Recreation managers and researchers may be able to target less widely held norms with similar message appeals to make them more salient, thereby increasing the certainty by which they are held, and the probability of influencing behavior.

Finally, recreational behavior may be influenced by the introduction and promotion of new normative beliefs. Researchers have identified newly emerging recreation norms that may not be salient to most recreationists (Shelby & Vaske, 1991). Recent research suggests that recreation norms develop through a process beginning with conventions about specific behavior that develops into evolving norms and eventually into accepted norms (Heywood, 1993). Since the field of recreation is constantly changing and maturing, strategies in message design and development may have utility in promoting recreationists' adoption of the new norms. Managers and researchers may be able to influence recreationist behavior by identifying and promoting new normative beliefs

through interpretive and informational message campaigns. For example, an interpretive sign may state that, "experienced backpackers and wilderness resource managers agree that choosing equipment and clothing in earth-tone colors is preferable for limiting visual pollution in the backcountry". While this norm is salient to experienced backcountry users, less experienced users may need repeated cueing to accept the new norm.

Understanding the process by which people access norms has implications for designing and developing persuasive efforts that deal with a variety of management issues including, law enforcement, interpretation and resource management. Different cues, provided in the form of message appeals, may be important in accessing specific norms from individuals visiting recreation settings. Additionally, understanding the influence of the variability of experience levels in recreation settings on norm salience may be useful in developing target sensitive persuasive message appeals and cues.

In conclusion, when there is interest in predicting or affecting recreation behavior, knowledge of norm accessibility may have utility. Examining the accessibility of recreation norms has implications for understanding what internal rules people have about a recreational setting. Identifying the salient norms of recreationists may indicate whether a normative belief about the management practice or decision is widely held and will be adhered to by the individual recreationists. Before attempting to reinforce, change or install recreation normative beliefs it is important to be able to understand and predict the basis of peoples inherent behavior. Identifying and assessing the modal salient norms that may influence behavior can be achieved by eliciting norms from recreationists. The usefulness of elicitation studies have been discussed by Ajzen and Fishbein (1980). Elicitation studies may be crucial in understanding the influence of salient norms on recreation behavior. Although descriptive in nature, the results of this study point to the potential importance of this approach.

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Table 1 List of backcountry salient norms

Salient Recreation Norm	Percent Responding
1. Should minimally impact the resource	73%
2. Should not litter	70%
3. Should be quiet in the setting	39%
4. Should not destroy vegetation	39%
5. Should be careful with fires	39%
6. Should respect wildlife	32%
7. Should stay on the trails	25%
8. Should be considerate of others	20%
9. Should know your own limits	18%
10. Should not ride off roads	16%
11. Should obey fishing laws	13%

Table 2 List of frontcountry salient norms

Salient Recreation Norm	Percent Responding
1. Should not litter	80%
2. Should be quiet in the setting	34%
3. Should properly use facilities	32%
4. Should be careful with fires	29%
5. Should not vandalize property	27%
6. Should not destroy vegetation	24%
7. Should be considerate of others	24%
8. Should stay on the trails	20%
9. Should minimally impact the resource	17%
10. Should respect wildlife	15%
11. Should respect other's space	10%
12. Should not steal anything	10%

Table 3 Effect of Setting and Frequency of Visitation on Number of Norms

Source of Variation	Sum of Squares	d.f.	F	Signif of F
Main Effects	19.632	2	1.940	0.150
Setting	0.096	1	0.019	0.891
Frequency of Visitation	16.563	1	3.273	0.074
2-way Interactions	0.258	1	0.051	0.822
Setting x Frequency Level	0.258	1	0.051	0.822
Explained	19.890	3		
Residual	409.922	81		
Total	429.812	84		

Table 4 Effect of Setting and Knowledge Levels on Number of Norms

Source of Variation	Sum of Squares	d.f.	F	Signif of F
Main Effects	19.972	2	2.180	0.120
Setting	5.488	1	1.198	0.277
Knowledge Level	16.903	1	3.690	0.058
2-way Interactions	38.830	1	8.477	0.005
Setting x Knowledge Level	38.830	1	8.477	0.005
Explained	58.802	3		
Residual	371.010	81		
Total	429.812	84		

Table 5 Effect of Setting and Experience Levels and Number of Norms

Source of Variation	Sum of Squares	d.f.	F	Signif of F
Main Effects	8.341	2	0.826	0.441
Setting	2.274	1	0.45	0.504
Experience Level	5.272	1	1.044	0.310
2-way Interactions	12.54	1	2.484	0.119
Setting x Experience Level	12.54	1	2.484	0.119
Explained	20.881	3		
Residual	408.931	81		
Total	429.812	84		

Table 6 Mean certainty scores for modal salient norms.

"How certain are you that this is how a person ought to behave in this type of setting"

Backcountry			Frontcountry		
	M	SD		M	SD
1 minimally impact the resource	6.69	0.64	1 not litter	6.85	0.44
2 not litter	6.87	0.43	2 be quiet in the setting	5.64	1.08
3 be quiet in the setting	5.12	1.50	3 properly use facilities	5.39	1.85
4 not destroy vegetation	5.82	1.29	4 be careful with fires	6.50	0.91
5 be careful with fires	6.18	1.24	5 not vandalize property	6.82	0.41
6 respect wildlife	6.64	0.50	6 not destroy vegetation	6.40	0.97
7 stay on the trails	5.82	1.40	7 be considerate of others	5.40	0.84
8 be considerate of others	6.11	0.93	8 stay on the trails	5.38	1.06
9 know your own limits	6.63	0.52	9 minimally impact the resource	6.43	0.79
10 not ride off roads	6.57	0.54	10 respect wildlife	7.00	0.00

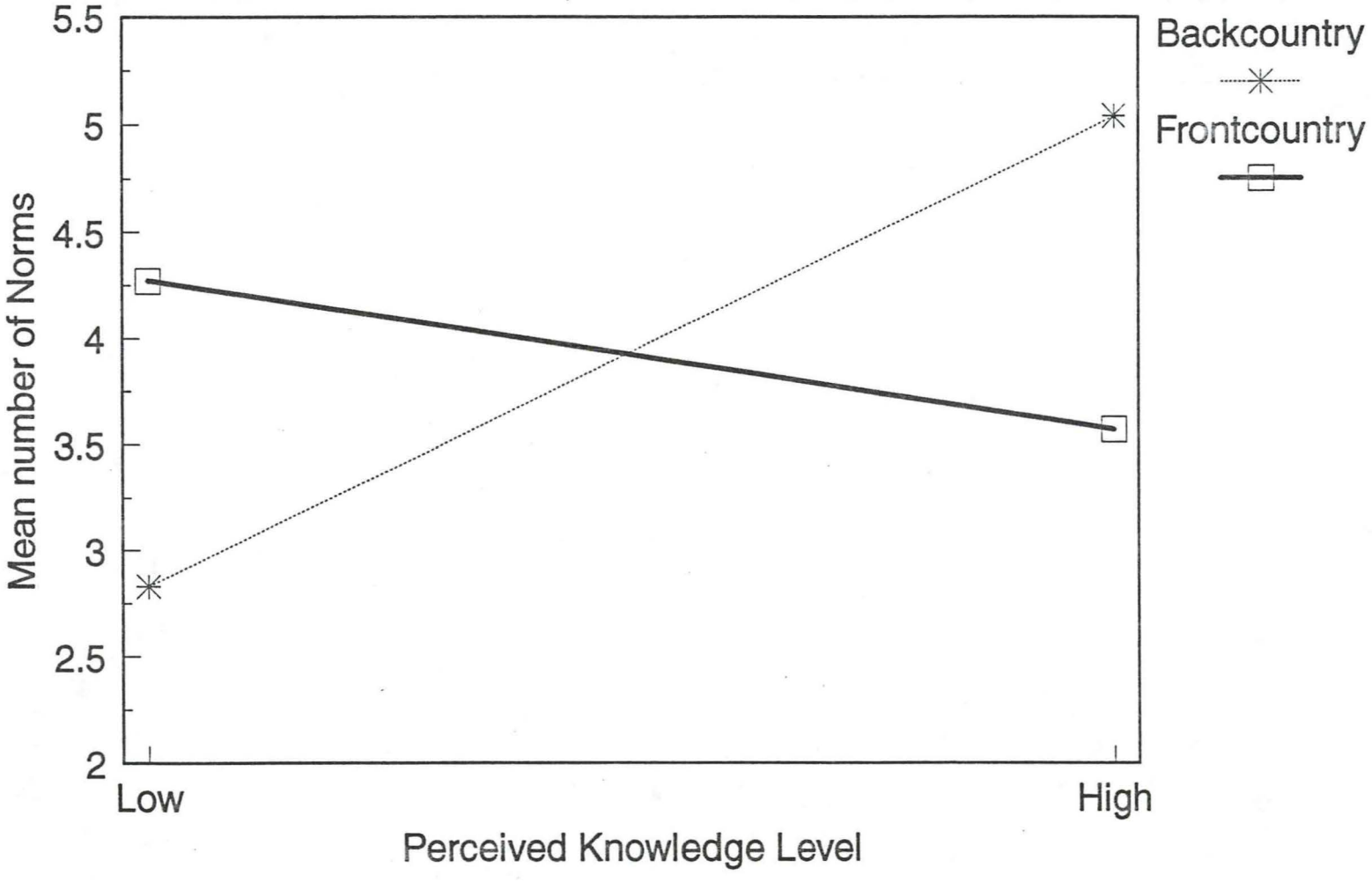

Figure 1. Effect of knowledge level and setting on number of norms.

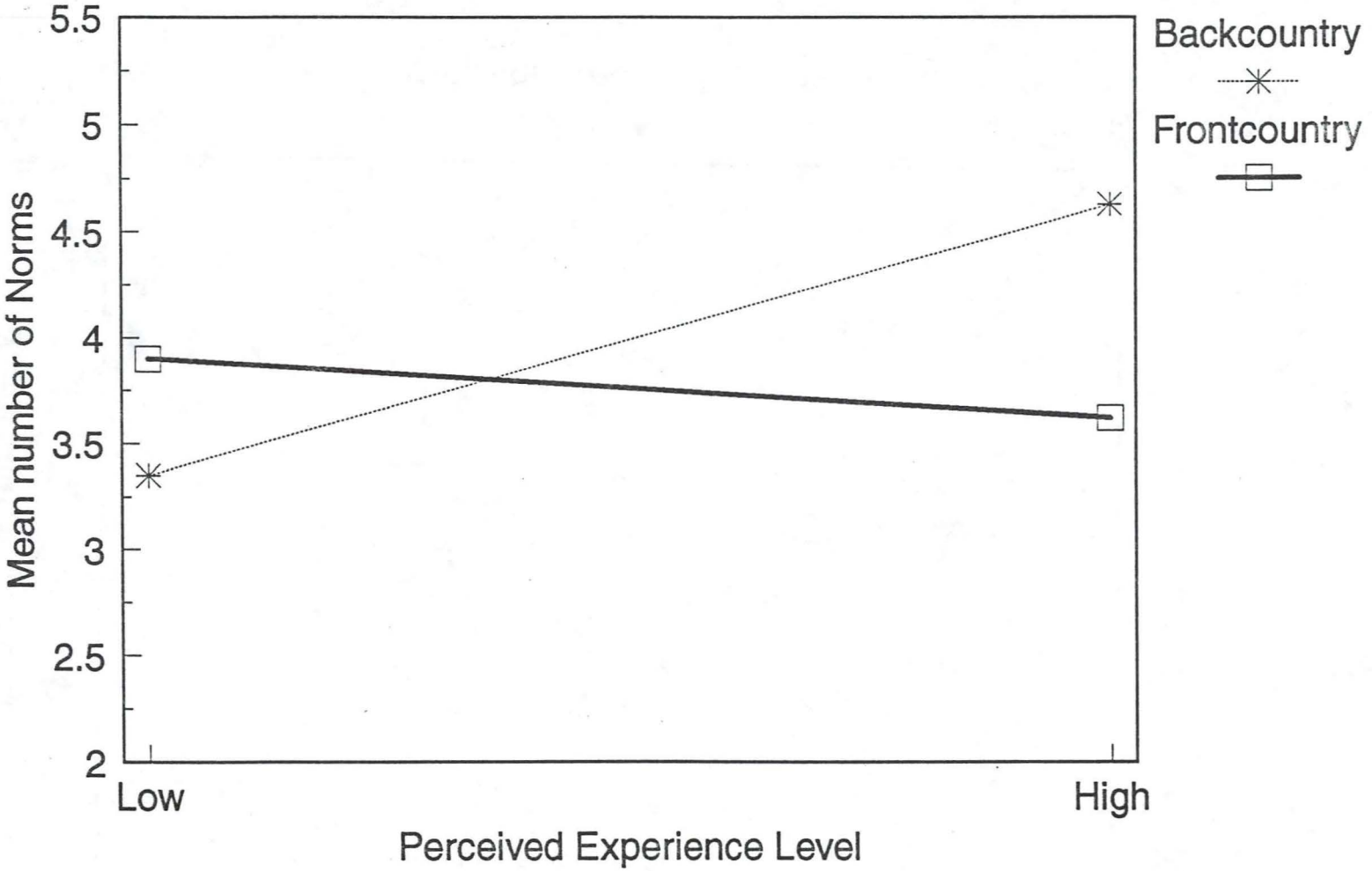

Figure 2. Effect of experience level and setting on number of norms.